WHAT IS CLAIMED IS

1. A loss point detecting method for determining whether or not a loss point occurs in an optical transmission path, in a distributed Raman amplifier which amplifies a signal light with a use of the optical transmission path as an amplifying medium by applying an excitation light to the optical transmission path in a direction opposite to a direction in which the signal light is transmitted there, comprising the steps of:

a) monitoring a scattered light separating from the optical transmission path;

b) separating a part of the excitation light and monitoring it;

c) separating a reflected light which passes in a direction opposite to the direction in which the excitation light passes through the optical transmission path, and monitoring it; and

d) determining, when a power of the excitation light monitored reaches a predetermined determination value, whether or not a loss point occurs, based on a ratio between a power of the scattered light monitored and a power of the reflected light monitored.

2. A loss point detecting method for determining whether or not a loss point occurs in an optical transmission path, in a distributed Raman amplifier which amplifies a signal light with a use of the optical transmission path as an amplifying

medium by applying an excitation light to the optical transmission path in a direction opposite to a direction in which the signal light is transmitted there, comprising the steps of:

a) monitoring a scattered light separating from the optical transmission path;

b) separating a part of the excitation light and monitoring it; and

c) determining, when a power of the excitation light monitored reaches a predetermined determination value, whether or not a loss point occurs, based on a power of the scattered light monitored.

3. A distributed Raman amplifier which amplifies a signal light with a use of an optical transmission path as an amplifying medium by applying an excitation light to the optical transmission path in a direction opposite to a direction in which the signal light is transmitted there, comprising:

a scattered-light monitoring part monitoring a scattered light separating from the optical transmission path;

an excitation-light monitoring part separating a part of the excitation light and monitoring it;

a reflected-light monitoring part separating a reflected light which passes in a direction opposite to the direction in which the excitation light passes through the optical transmission path, and monitoring it;

a determining part determining, when a power of the excitation light monitored reaches a

predetermined determination value, whether or not any loss point occurs, based on a ratio between a power of the scattered light monitored and a power of the reflected light monitored; and

a breaking part stopping the application of the excitation light when said determining part determines that a loss point occurs.

4. A distributed Raman amplifier which amplifies a signal light with a use of an optical transmission path as an amplifying medium by applying an excitation light to the optical transmission path in a direction opposite to a direction in which the signal light is transmitted there, comprising:

a scattered-light monitoring part monitoring a scattered light separating from the optical transmission path;

an excitation-light monitoring part separating a part of the excitation light and monitoring it;

a reflected-light monitoring part separating a reflected light which passes in a direction opposite to the direction in which the excitation light passes through the optical transmission path, and monitoring it;

a determining part determining whether or not a loss point occurs, with increasing a power of the excitation light at a fixed rate, and comparing a time required for a power of the scattered light monitored to reach a fixed value with a time required for a power of the reflected light monitored to reach a fixed value; and

a breaking part stopping the application

of the excitation light when said determining part determines that a loss point occurs.

5. A distributed Raman amplifier which amplifies a signal light with a use of an optical transmission path as an amplifying medium by applying an excitation light to the optical transmission path in a direction opposite to a direction in which the signal light is transmitted there, comprising:

a scattered-light monitoring part monitoring a scattered light separating from the optical transmission path;

an excitation-light monitoring part separating a part of the excitation light and monitoring it;

a determining part determining, when a power of the excitation light monitored reaches a predetermined determination value, whether or not any loss point occurs, based on a power of the scattered light monitored; and

a breaking part stopping the application of the excitation light when said determining part determines that a loss point occurs.

6. The distributed Raman amplifier as claimed in claim 3, wherein:

said determining part determines, when the power of the excitation light monitored reaches the predetermined determination value, that a loss point occurs when the ratio the power of the reflected

light monitored with respect to the power of the scattered light monitored exceeds a predetermined value.

7. The distributed Raman amplifier as claimed in claim 3, further comprising:

a first band separating optical coupler separating only the scattered light from the optical transmission path.

8. The distributed Raman amplifier as claimed in claim 4, further comprising:

a first band separating optical coupler separating only the scattered light from the optical transmission path.

9. The distributed Raman amplifier as claimed in claim 5, further comprising:

a first band separating optical coupler separating only the scattered light from the optical transmission path.

10. The distributed Raman amplifier as claimed in claim 3, further comprising:

a second band separating optical coupler

separating the scattered light from the signal light and scattered light separated from the optical transmission path by means of an optical coupler.

11. The distributed Raman amplifier as claimed in claim 4, further comprising:

a second band separating optical coupler separating the scattered light from the signal light and scattered light separated from the optical transmission path by means of an optical coupler.

12. The distributed Raman amplifier as claimed in claim 5, further comprising:

a second band separating optical coupler separating the scattered light from the signal light and scattered light separated from the optical transmission path by means of an optical coupler.